

CLAIMS

What is claimed is:

1. A fluid flow circuit comprising:

a fluid transfer device;

a pressure differential measurement device to measure the pressure differential across the fluid transfer device;

a power monitoring device to measure the power of the fluid transfer device; and

a controller in communication with the pressure differential measurement device and the power monitoring device,

where said controller is programmed with software commands to automatically sample data reflecting the power and the pressure differential of the fluid transfer device and to automatically maintain a substantially constant fluid flow through the fluid transfer device based on the power and the pressure differential of the fluid transfer device.
2. The fluid flow circuit of claim 1 where said controller maintains a substantially constant fluid flow through the fluid transfer device by adjusting the speed of the fluid transfer device in response to variations in the system curve of the fluid transfer device.
3. The fluid flow circuit of claim 1, where the fluid transfer device is selected from the group consisting of a centrifugal pump, a positive displacement pump, a compressor, a turbine, a diaphragm pump, and a water seal pump.
4. The fluid flow circuit of claim 1, where the varying pressure drop within the fluid flow circuit comprises a rise in pressure losses in the fluid flow circuit.

5. The fluid flow circuit of claim 1, where the constant fluid flow is approximately equal to the baseline flow of the fluid flow circuit.
6. A method of maintaining a constant flow of fluid within a fluid flow circuit comprising the steps of:

installing a fluid transfer device within a fluid flow circuit;

establishing a baseline flow for the fluid transfer device;

monitoring the pressure differential across the fluid transfer device;

monitoring the power provided to the fluid transfer device; and

adjusting the power provided to the fluid transfer device to maintain a flow through the fluid transfer device that is approximately equal to the baseline flow.
7. The method of claim 6 where the fluid transfer device is selected from the group consisting of a centrifugal pump, a positive displacement pump, a compressor, a turbine, a diaphragm pump, and a water seal pump.
8. The method of claim 6 further comprising determining the power of the fluid transfer device as a function of the fluid flow through the fluid transfer device and of the pressure differential measured by the pressure differential measurement device.
9. The method of claim 6 where the power to the fluid transfer device is adjusted by increasing its magnitude.
10. The method of claim 6 where the power to the fluid transfer device is adjusted by decreasing its magnitude.
11. The method of claim 6 where the power to the fluid transfer device is adjusted to produce a flow through the fluid transfer device that is greater than the baseline flow.

12. The method of claim 6 where the power to the fluid transfer device is adjusted to produce a flow through the fluid transfer device that is less than the baseline flow.